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NEW HAMPSHIRE COLLEGE

AGRICULTURAL EXPERIMENT STATION

SOME INFERIOR WOOD ASHES

By Fred W. Morse

The time for purchasing fertilizers having come, the Station wishes to call the attention of farmers to the variable composition of wood ashes and particularly to some evidently fraudulent lots of Canada ashes, samples of which were received at the laboratory last fall.

Five samples, representing three different lots, were received during October, 1896, from widely different sections of the state, namely Plymouth, Stratham, and Walpole. The ashes were all bought of the same wholesale dealer, and analysis showed them to be quite uniform in quality; but noticeably inferior. By referring to the first five analyses in the table, it will be seen that the proportion of moisture is very high, amounting to 450 pounds of water in one ton of ashes as purchased.

The proportion of potash is low, especially if the soluble form is alone considered, which fact, taken with the quantity of water, leads one to suspect that these ashes had been either leached partially or prepared by mixing leached and dry ashes together. The proportion of lime found in the most inferior sample (467) disposes of any suspicion of adulteration with lime as the percentage is not high.

The price of these ashes was $10 per ton delivered in carload

lots at the respective railroad stations. This price is lower than any quotations previously known to the Station. The important point for purchasers, however, is that *the low price was accompanied by an apparently deliberate reduction in the quality of the ashes.*

During the year preceding the receipt of the five samples above described, the Canada ashes sent to the Station for analysis were of good quality, as will be seen by scanning the tabulated results. Number 309 is of interest because, though very moist, it yet contains a high percentage of potash. The ashes had most probably been exposed to rain, instead of having been leached and afterward partially dried. The same is also probably true of domestic ashes, No. 413.

Three samples of domestic ashes are characterized by being very dry, and No. 286 was probably taken soon after the ashes were removed from the stove. Average Canada ashes contain about 12 per cent. of moisture, which renders them as damp as the average chemical fertilizer. Buyers of ashes should therefore look with suspicion on lots that appear excessively moist, because in such cases the potash is seldom equal to the proportion in average ashes.

The refuse ashes were samples from burned rubbish, principally waste paper and refuse lumber. The analytical results speak for themselves. Ashes from paper are as valueless as those from coal, because the soluble mineral matter has been leached out of the paper stock during the process of paper making.

COMPOSITION OF ASHES.

Parts in 100.

CANADA ASHES, FALL, 1896.

No.	Locality.	Moisture.	Total phosphoric acid.	Soluble potash.	Total potash.	Lime.
460	Plymouth	24.80	1.13	2.62	3.24	
464	Walpole	23.90	1.04	2.48	3.15	
465	Walpole	21.00	1.09	3.22	3.62	
467	Stratham	25.25	.98	1.99	2.75	34.34
470	Plymouth	22.60	1.17	2.60	3.35	

CANADA ASHES, 1895-'96.

285	Plymouth	6.95	1.66	4.29	6.29	
287	Newington	14.40	1.24	4.13	5.50	
305	Epping	15.10	1.17	3.05	7.22	
306	Epping	15.80	1.20	3.00	5.75	
308	Hollis	11.23		7.04	8.20	
309	Plymouth	20.13		5.50	6.54	37.89
427	Lancaster	15.06	1.64	4.81	5.67	
428	Lancaster	12.30	1.60	4.84	5.46	
463	Intervale	13.95	1.50	4.40	5.13	

DOMESTIC ASHES.

286	Plymouth	.18	2.62	7.53	11.40	
413	Pittsfield	19.63	2.45	5.34	5.95	
414	Pittsfield	3.47	2.54	7.01	8.06	
459	Plymouth	2.59	2.68	6.02	7.39	

REFUSE ASHES.

354	East Pembroke	19.90	.81	.51	1.96	8.35
415	Pittsfield	20.50	.50	.34	2.05	

ADULTERATED PARIS GREEN.

Since the publication of Bulletin 36 on the composition of Paris green, a sample of that much-used insecticide has been received, which showed every evidence of premeditated fraud. The sample was sent from Alstead and was contained in a pasteboard box with unbroken seal. The package was labeled "Pure Paris Green," "The only sure Poison for Potato-Bugs, Etc.;" but bore no name of a manufacturer or agent.

The package was probably intended to pass for a half-pound, but weighed barely seven and one-half ounces before the seal was broken. The contents of the package were of a paler shade of green than those before analyzed, and contained small, white lumps, which were easily pulverized between the thumb and finger.

The material was found to contain only 30 per cent.

of arsenic trioxide, while 43.3 per cent. of the substance was insoluble in hydrochloric acid. Pure Paris green should be almost wholly soluble in acid and should contain from 55 to 60 per cent. of arsenic trioxide. Further examination of the sample showed it to contain 30.6 per cent. of silica and 5 per cent. of oxides of iron and aluminum. From these results it appears that this "Pure Paris Green" was a *mixture of about equal parts of Paris green and earthy matter*, either clay or infusorial earth.

Probably the best way by which users of this important insecticide may protect themselves, is to refuse to buy packages which bear no trade-marks of the manufacturers, since the samples reported in the previous bulletin as being pure were all plainly marked with their respective makers' names.

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